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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,924	12/19/2001	Edward Ratner	10006.000210	9891

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OKAMOTO & BENEDICTO, LLP
P.O. BOX 641330
SAN JOSE, CA 95164

EXAMINER	
ROSARIO-VASQUEZ, DENNIS	
ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,924	RATNER ET AL.	
	Examiner	Art Unit	
	Dennis Rosario-Vasquez	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7 and 9-21* is/are rejected.

7)☒ Claim(s) *6 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 03/28/02
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Specification

2. The disclosure is objected to because of the following informalities:

Page 8, lines 1-3 has a sentence: "A reason behind this for digital cameras is that CCDs (charge coupled devices) in effectively..." which ought to be amended to "A reason behind this is that digital camera CCDs (charge coupled devices) in effect..."

Page 15, line 15:"there are no more the pixels" ought to be amended to "there are no more pixels...".

Page 17, line 2:"thelength" ought to be amended to "the length"

Appropriate correction is required.

Claim Objections

3. The following quotations of 37 CFR § 1.75(a) is the basis of objection:

> (a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

4. Claims 1, 4 and 12 are objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Regarding claims 1 and 12, lines 5 and 4,respectively: "the blur contributions" has no antecedent basis. "the blur contributions" ought to be amended to "blur contributions".

Regarding claim 4, line 1:"The method of claim 2," ought to be amended to "The method of claim 3," Claim 4 has no antecedent basis for the first and second vectors.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim1, 2 ,3 ,4 ,5 ,7 ,9 ,10 ,11, 12 , 13, 14 ,15 ,16, 17, 18, 19, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sullivan et al. (US Patent 5,070,413 A).

Claim 1 was addressed in claim 12.

Regarding claims 2 and 20, Sullivan et al. discloses the method and means of claims 1 and 19 further comprising:

means for (Fig. 7, num. 54: ERROR WEIGHT) subtracting (Fig. 7, num. 54: ERROR WEIGHT assigns a weight of zero to the error vector which corresponds to a truncation of an error vector mentioned in col. 7, line 66 to col. 8, line 1. A truncated error vector with zero weight means that the error vector is removed or subtracted as shown by the arrow labeled with "WITH BLUR" and "WITHOUT BLUR" in figure 4 and no blurring occurs.) the blur contributions (Error vector "e") from color vectors ("V" of figure 4) of the pixels (Figure 6 has three lower pixels labeled with "1/4" that corresponds to vector "V" of figure 4) to remove blurring from the segment (A line of

pixels as shown in an array of three lower pixels in figure 6 where one of the pixels is not blurred.).

Regarding claim 3, Sullivan et al. discloses the method of claim 2, wherein calculating the blur contributions (Error vector "e" in figure 7.) comprises:

a) determining a first color vector (Fig. 7,num. 50 outputs a vector, "y_{ij}".) relating to the segment (A line of pixels as shown in an array of three lower pixels in figure 6 where one of the pixels is not blurred.);

b) determining a second color vector (Fig. 7, num. 42 determines vector "$u_{ij}(1)$".) relating to at least one adjacent segment (Fig.7, num. 42 processes another segment that is shown in figure 6 with a pixel labeled with "1/4" at the top right corner.) in proximity to the pixels (Figure 6 has three lower pixels labeled with "1/4" that corresponds to vector "V" of figure 4); and

c) determining a third color vector (fig. 7, num. 44 determines a vector "$w'_{ij}(1)$".) relating to the pixels (Figure 6 has three lower pixels labeled with "1/4" that corresponds to vector "V" of figure 4).

Regarding claim [4] **3**, Sullivan et al. discloses the method of claim 2, wherein the blur contributions (Error vector "e" in figure 7.) are in a same direction as a first difference vector (Error vector "e" in figure 7 is a difference vector shown in column 7, equation 13 and mentioned in col. 7, lines 56-59.) comprising the second color vector (Fig. 7, num. 42 determines vector "$u_{ij}(1)$".) minus the first color vector (Fig. 7,num. 50 outputs a vector, "y_{ij}".).

Regarding claim 5, Sullivan et al. discloses the method of claim 3, wherein the first color vector (Fig. 7,num. 50 outputs a vector, "y_{ij}".) comprises a representative color (Vector "y_{ij}" is a blurred color of the current pixel.)of the segment (A line of pixels as shown in an array of three lower pixels in figure 6 where one of the pixels is the current pixel.), the second color vector (Fig. 7, num. 42 determines vector "$u_{ij}(1)$".) comprises a color (Vector "$u_{ij}(1)$" is a color vector in col. 7, line 58.) contribution (Vector "$u_{ij}(1)$" corresponds to the next pixel that receives a contribution from error vector "$e_{ij}(k)$" as shown in figure 6 in the top right corner.) of the at least one adjacent segment (Fig.7, num. 42 processes another segment that is shown in figure 6 with a pixel labeled with "1/4" at the top right corner that is adjacent to the bottom three pixels.), and the third color vector (fig. 7, num. 44 determines a vector "$w'_{ij}(1)$".) comprises representative colors of the pixels (Vector "$w'_{ij}(1)$" is an output color vector in col. 7, line 14.).

Regarding claim 7, Sullivan et al. discloses the method of claim 4, wherein the blur contributions (Error vector "e" in figure 7 and shown in figure 6.) are proportional (Error vector "e" has a weight that is $3/4^{th}$ the weight of the other pixels which has a weight of $1/4^{th}$.) to a blur coefficient (fig. 7, num. 54:ERROR WEIGHT outputs a weight of "1/4" to each pixel shown in figure 6.).

Regarding claim 9, Sullivan et al. discloses the method of claim 7, wherein the blur coefficients (fig. 7, num. 54:ERROR WEIGHT outputs a weight of "1/4" to each pixel shown in figure 6.) are calculated by an image processing apparatus (Fig. 7, num. 54:ERROR WEIGHT).

Regarding claim 10, Sullivan et al. discloses the method of claim 7, wherein the blur coefficients (fig. 7, num. 54:ERROR WEIGHT outputs a weight of "1/4" to each pixel shown in figure 6.) are calculated by a video processing apparatus (Fig. 1, num. 10:INPUT SCANNER corresponds to a device that scans a serial image for display on a display device in col. 4, lines 31-33 and 39,40. Thus, fig. 1, num. 10: INPUT SCANNER is a video processing apparatus that scans serial images or video.).

Regarding claim 11, Sullivan et al. discloses the method of claim 7, wherein the blur coefficients (fig. 7, num. 54:ERROR WEIGHT outputs a weight of "1/4" to each pixel shown in figure 6.) are provided as segment field data (Fig. 7, label "u_{ij}" contains the ERROR WEIGHT of "1/4" via equation 2 of column 4 where error "e" is used to generate the weight of "1/4" shown in figure 6.) relating to the segment (A line of pixels as shown in an array of three lower pixels in figure 6.).

Regarding claims 12,19 and 21, Sullivan et al. discloses a method and means of blurring a segment of an image, the method comprising:

a) means for fig. 7, num. 40:COLOR TRANSFORMATION in col. 7, lines 1-5.) selecting (A line of pixels is selected in an image by fig. 7, num. 40:COLOR TRANSFORMATION in col. 7, lines 1-5.) the segment (A line of pixels as shown in an array of three lower pixels in figure 6.);

b) means for (Fig. 7, num. 56: EDGE DETECT) identifying (Fig. 7, num. 56: EDGE DETECT outputs edge data that is used to identify edge from non-edge pixels from col. 7, line 66 to col. 8, line 5.) pixels (fig. 6 contains 4 pixels labeled "1/4".) of interest (Fig. 7, num. 54: ERROR WEIGHT uses the edge data from fig. 7,num. 56 to identify pixels of interest by assigning a weight of "1/4" to pixels of interest as shown in figure 6.) near a boundary of the segment (Fig. 6 can contain a detected edge pixel with a zero weight assigned in col. 7, line 66 to col. 8, line 1.);

c) means for (Fig. 7, num. 50 outputs HVS BLUR values.) determining [the] blur contributions (Fig. 7, num. 50 calculates a blur value, "$y_{i,j}$", from the current pixel for the next pixel in col. 7, lines 42-44.) for the pixels (fig. 6 contains 4 pixels labeled "1/4" that correspond to "the next pixel" in col. 5, lines 25-32.); and

d) means for (fig. 7, num. 42 is an adder) adding (fig. 7, num. 42 includes three adders which add an error vector "e" that includes blur contributions "$y_{i,j}$" using equation 13 in column 7 and mentioned in col. 7, lines 56-59. Thus, error vector "e" is a blur contribution that is used for the next pixel in col. 7, lines 63-65.) the blur contributions (Fig. 7, num. 50 calculates a blur value, "$y_{i,j}$" from the current pixel that is used for the next pixel in col. 7, lines 42-44 or error vector "e" as a function of blur, "$y_{i,j}$" using equation 13 of column 7.) to color vectors (fig. 7, labels "$v_{i,j}(1)$", "$v_{i,j}(2)$" and "$v_{i,j}(3)$".) of the pixels (fig. 6 contains 4 pixels labeled "1/4" that correspond to "the next pixel" in col. 5, lines 25-32.) to add (The error vector "e" as a function of blur, "$y_{i,j}$" is shown in figure 6 that distributes the blur contributions using equation 13 which is a

function of blur, "$y_{i,j}$", to the three lower pixel of figure 6.) blurring to the segment (A line of pixels as shown in an array of three lower pixels in figure 6.).

Regarding claim 13, Sullivan et al. discloses the method of claim 12, wherein calculating the blur contributions (Fig. 7, num. 50 calculates a blur value, "$y_{i,j}$", from the current pixel for the next pixel in col. 7, lines 42-44.) comprises:

a) determining a first color vector (Fig. 7,num. 50 outputs a vector, "y_{ij}".) relating to the segment (A line of pixels as shown in an array of three lower pixels in figure 6 where one of the pixels is not blurred.);

b) determining a second color vector (Fig. 7, num. 42 determines vector "$u_{ij}(1)$".) relating to at least one adjacent segment (Fig.7, num. 42 processes another segment that is shown in figure 6 with a pixel labeled with "1/4" at the top right corner.) in proximity to the pixels (Figure 6 has three lower pixels labeled with "1/4" that corresponds to vector "V" of figure 4); and

c) determining a measure of blurring (Fig. 7, num. 50 calculates a blur value, "$y_{i,j}$", from the current pixel for the next pixel in col. 7, lines 42-44.) relating to the pixels.

Claim 14 was addressed in claim 4.

Claim 15 was addressed in claim 5.

Claim 16 was addressed in claim 7.

Claim 17 was addressed in claim 9.

Regarding claim 18, Sullivan et al. discloses the method of claim 16, wherein the blur coefficients (fig. 7, num. 54:ERROR WEIGHT outputs a weight of "1/4" to each pixel shown in figure 6.) are retrieved (via fig. 7, num. 44) from segment field data (Fig. 7, label "u_{ij}" contains the ERROR WEIGHT of "1/4" via equation 2 of column 4 where error "e" is used to generate the weight of "1/4" shown in figure 6.) relating to the segment (A line of pixels as shown in an array of three lower pixels in figure 6.).

Allowable Subject Matter

7. Claims 6 and 8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 6 is allowed for the arrangement of vectors for projection of the vectors to determine a blur contribution.

Claim 8 is allowed for the arrangement of vectors that are used to determine a blur coefficient.

The prior art does not teach the limitations of claims 6 and 8 of how vectors are used to determine a blur contribution and blur coefficient.

The closest prior art is Moehring et al. (US Patent 6,547,736 B1) teaches a method of low pass filtering, which corresponds to a blurring, using two vectors "a" and "b" with a dot product in col. 10, lines 37-50. However, the vectors are not arranged as claimed.

The benefit of claims 6 and 8 is stark boundaries of segments may be softened realistically by such re-blurring to re-create approximately the same amount of blur previously removed.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rudin et al. (US Patent 6,452,637 B1) is pertinent as teaching a method of fusing images using vectors as shown in figure 9.

Kino (US Patent 6,115,078 A) is pertinent as teaching a method of selecting a direction of sharpening or blurring as shown in figure 6.

Morioka et al. (US Patent 5,995,111 A) is pertinent as teaching a method of blurring using vectors as shown in figure 7.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario-Vasquez whose telephone number is 703-305-5431. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRV
Dennis Rosario-Vasquez
Unit 2621

LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600